

Remarks

Claims 1 and 3-7 stand rejected under 35 U.S.C. § 103(a) for obviousness over PCT publication WO 97/31783 to Ringle in view of U. S. Patent Nos. 5,368,974 to Walls et al. or 3,220,832 to Uhlig. Claims 2 and 8-26 stand rejected under 35 U.S.C. § 103(a) for obviousness over Ringle in view of Walls or Uhlig in further view of U.S. Patent No. 5,759,742 to West et al. and 6,165,689 to Vermeersch. Claims 17-26 have been cancelled. New claims 27 and 28 have been added. The following remarks are made in reference to claims 1-16, 27 and 28.

The present invention is directed to a non-anodized sheet product having a treated surface for use in a lithographic plate. The sheet includes a metal substrate having a roughened surface with an Ra value of less than about 40 microinches and a pretreatment layer positioned on the roughened surface. The pretreatment layer includes a polymer and about 4-50 wt.% dopant particles. The polymer includes polymers of acrylic acid or methacrylic acid, organophosphorous polymers and copolymers of an organophosphorous compound and acrylic acid or methacrylic acid. The pretreatment layer containing a polymer and the dopant particles is particularly suited for adhering a printing composition (an imaging layer) to the sheet. This particular combination of a roughened substrate and a pretreatment layer containing the polymers set forth in claim 1 and dopant particles in a concentration of 4 to 50 wt.% is not taught or suggested by the prior art of record.

Claim 1 has been amended to incorporate the limitations of claims 8 and 9, which are now canceled. The dependency of claims 10-13 is changed accordingly. The subject matter of original claims 8 and 9 is directed to the embodiment of the invention disclosed in ¶ 29 of the specification and shown in Fig. 1. New claims 27 and 28 are directed to a preferred embodiment namely the use of silica dopant particles at a

concentration of about 20-50 wt.%. Support therefore appears in ¶ 29 and Table 1. No new matter is added.

In view of the amendment of claim 1, the rejection of claims 1 and 3-7 over the combined teachings of Ringle, Walls and/or Uhlig is now moot. Claims 1-7, 10-16, 27 and 28 are believed to define over the combined teachings of Ringle, Walls or Uhlig, West and Vermeersch for the following reasons.

The Ringle patent is directed to a lithosheet having a roll textured substrate covered with a hydrophobic coating. The substrate is roll textured to create peaks and valleys that hold water (increase the substrate's hydrophilicity) and enhance adhesion of the hydrophobic (image-forming) coating thereto. See, page 6, line 28-33 and page 7, lines 7-9.

Each of the Uhlig and Walls patents discloses a printing plate having a mechanically roughened aluminum substrate bearing a hydrophilic polymeric adhesive layer onto which an image-forming coating is applied. The polymeric layer is used to adhere the image-forming layer on the substrate. The Ringle application solved this problem of requiring a separate layer for adhering an image-forming layer to aluminum substrate by roughening the substrate. The product of Ringle has no need for the polymeric adhesive layer of Uhlig or Walls. As such, it is inappropriate to combine their teachings. One or other solution to the problem of adhering an image-forming layer to a substrate would be useful (either a roughened substrate OR a polymeric adhesive layer) – but both would be redundant.

The Vermeersch et al. patent presumably is relied upon for its teachings to include particles in a hydrophilic binder layer. However, these teachings are more limited than as suggested in the Office Action. The only embodiment in Vermeersch of a printing plate having particulate matter is a plate with a paper or plastic film substrate (not rough) bearing a cross-linked hydrophilic layer (a hydrophilic binder). At col. 5, lines 18-35 the patent indicates that colloidal silica may be added to the binder layer to increase the mechanical strength and porosity of the layer and to give "a uniform rough

texture consisting of microscopic hills and valleys, which serve as storage places for water in background areas." Hence, the colloidal silica particles are taught as being useful for roughening the surface of the binder layer (presumably since the paper or polymeric film substrate is relatively smooth) to enhance the hydrophilicity of the binder layer. Again, Ringle already solved that problem by roughening the metal substrate. Therefore, motivation to combine the teachings of Vermersch with the other cited references is lacking.

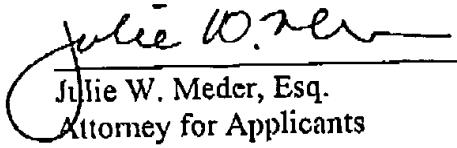
In addition, the concentration of particulate matter is not disclosed in Vermersch. Applicants have determined a range of concentration of dopant particles which is particularly suitable for a pretreatment layer of a lithographic plate, namely 5-50 wt.% or 20-50 wt.%. No such teaching or suggestion present in Vermeersch or in any of the other cited references.

The West patent is cited for teaching materials other than aluminum as a substrate. Applicants recognize that other substrates have been used in lithographic printing plates. However, the particular arrangement set forth in amended claim 1 is not taught or suggested by the prior art of record.

In view of the amendment to claim 1 and for the foregoing reasons, reconsideration of the rejections and allowance of claims 1-7, 10-16, 27 and 28 are respectively requested.

If the Examiner would like to suggest changes of a formal nature to place this application in better condition for allowance, a telephone call to Applicants' undersigned attorney would be appreciated.

Respectfully submitted,

  
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